

A HISTORY AND INVESTIGATION INTO THE
FLUCTUATIONS OF *POLYGONIA C-ALBUM* L.:
THE COMMA BUTTERFLY

By COLIN PRATT*

This beautiful butterfly, with its uniquely irregular silhouette, has a history in this country that is as interesting and territorially volatile as any British species. Before the well known expansion of range over the first half of this century, the insect had previously retreated to strongholds contained within about a dozen countries — having formerly enjoyed, during parts of the 19th century, a distribution that has been unequalled since. Its “true home has always been the counties of Gloucester, Hereford, and Monmouth” (Ford, 1945) and here and in parts of some other adjacent counties the butterfly was irregularly abundant in hop-gardens.

The species is usually double brooded, although three generations have been recorded during unusually hot summers, as in 1886 and 1911, and eggs are laid from Spring pairings of hibernated adults in late April and May. After these early larvae have emerged as adults in July and August the species pairs again, the resultant progeny quickly yielding the second brood of adults in the autumn. Eggs are laid on a variety of different foodplants, discussed later, but usually on hop or stinging nettle. In the south-east larvae were called “hop-cats” and pupae “silver-grubs” by the casual labour used for hop picking during the last century. A proportion of the July adults are thought to hibernate quickly after emergence, these being the darker, typical, form — although this has been challenged (Newman, 1950). Thus the species is thought to exclusively pass the winter hibernating as a typical adult, although it has been suggested that it might on occasion overwinter as a pupa (see Johnson, 1955; Archer-Lock, 1979).

Considerable confusion has existed over the bionomics of the light coloured form known as *hutchinsoni* Rob.; there was even disorder over exactly which season it was when the form occurred and this was not finally cleared up until the last decade of the 19th century by Bath (1893). Normally the form can only be found in mid-summer, although captive autumnal records exist for the year of 1910 (Anon., 1911) and for feral hibernated specimens both on the continent (*loc. cit.*; Bath, 1893) and in Derbyshire in 1950 (Garland, 1981). Of the Spring depositions, it has been recorded that up to the first 40% laid by individuals produce only *hutchinsoni* (Newman, 1908; Frohawk, 1914). It was also said that different foodplants produced the two forms, where “about one-fourth of those fed on currant were of the dark autumn form, and every one

*5 View Road, Peacehaven, East Sussex.

on hop were so. In former years, when fed on the common stinging nettle, *Urtica dioica*, there scarcely ever was a dark form" (Hutchinson, 1896). But, it has been known for many years that the species form "can be changed by cold from the first or summer generation to the second or autumn generation, and the second generation partly to the first by the application of warmth" (Standfuss, 1900). More recently the form has been attributed to the fast development of larvae (Howarth, 1973; Broom, 1977), the statements probably being stimulated by experiments by Harper and Waller (1950) which proved that the rate of larval development determines the adult form; as this varies with temperature and food succulence, all of the previously mentioned statements can be encompassed. The forms comparative infrequency in some areas, such as Bedfordshire (West, 1949) and north Wales (Dennis, 1971), can also thus be explained.

This light form was named after a Mrs. Emma Sarah Hutchinson of Grantsfield, near Leominster, in Herefordshire, and she was thought to be "better acquainted with this butterfly than any other entomologist in the kingdom" (Dale, 1890) — and no account of the Comma would be complete without this reference. Over the last few decades of the 19th century and later, Mrs. Hutchinson supplied many collectors with all stages of *c-album*, then fast becoming a national rarity — a Sussex enthusiast even reciprocating with *T. flammea* ova — but on publically offering examples gratis in 1881 found that "much embarrassment and not a little annoyance were caused to the local postal service by the overwhelming number of boxes of all sorts and sizes forwarded for that purpose . . . the number of requests for the butterfly was estimated by her as nearly 900" (Walker, 1938). Despite the fact that the insect had been reported as being double brooded by several authorities well over half a century before, doubt was still being expressed as late as 1871 (Newman) but Mrs. Hutchinson laid the misconception to rest; it was caused by consistently low numbers of larvae in the first brood and the presence of summer adults is still thought to be subject to favourable weather. Mrs. Hutchinson died aged 85 on December 10th 1905 but even just before the Second World War her "unrivalled experience" and "unstinted generosity" with the species was still held in high esteem (Walker, 1938).

The Decline to 1913

The first mention of the Comma butterfly in a work exclusively devoted to British insects was more than three centuries ago (Merrett, 1667) and until the early part of the last century it was thought to be a rather uncommon species. However, over two portions of the 19th century the insect enjoyed its widest distribution ever, within recorded entomological history — although even just after the mid 18th century *c-album* was established at least as far north as county

Durham. The butterfly was locally common in many counties up to the Scottish border and found less frequently even over the border in the early years of the 19th century, and again later, but before three decades had elapsed it had "become somewhat scarce everywhere within these last few years" (Stephens, 1828).

England

The insect almost disappeared from Hertfordshire after 1812; in parts of central Dorset it became very rare after 1816 and extinct after 1820 — completely disappearing from the county after about 1840, singletons returning in 1877, 1887, and 1898. Elsewhere the species became much less numerous in Epping Forest after about 1818 and in Kent and Sussex at around this decade. Uncommon in Huntingdonshire, the butterfly became even less frequent after 1832, the last report of numbers near the capital came from Penge in 1836, and it became rare in Suffolk during the same decade. Although Hertfordshire enjoyed a brief revival during the early 1830's the species became a very rare one there after that time. By now the insect was very scarce in every county along the south coast and this status was later confirmed as it was said that a "noticeable feature of its distribution is its absence from what may be called maritime lists" (Newman, 1871). This early decline manifested itself in a more consistent drop in numbers outside of its heartlands, and especially in local extinctions, but few county-wide disappearances occurred in the south over these years. This trend continued with the species becoming extinct in Cambridgeshire after the last pair were seen in 1842 and it declined in Cumberland after 1846, disappearing after 1850. Immediately after the middle of the century it returned to rarity in Essex and was soon again listed by an up-to-date chronicler as having "disappeared from many places where it was formerly abundant" (Stainton, 1857).

While the species was much less numerous over the second quarter of the 19th century there was an accompanying retreat from, and subsequent return to, the north; Cumberland and Westmoreland apart, there are few or no records north of Liverpool over those years. After the mid 1840's the butterfly was "first" reported from Derbyshire in 1855 when three were seen, in south Yorkshire in 1856, in Lancashire in 1857, in east Yorkshire in 1858, and it was common in north Lincolnshire at the same time; in 1861 the insect re-appeared in Durham and seven years later at Newcastle in Northumberland. This is a sequential progression northwards which reached its zenith in about 1870 in Scotland. In 1871 the species turned up in a number of unexpected places — including both east and west Sussex, Essex, Lancashire, Hampshire, Suffolk, and perhaps even Ireland.

This was a species "of very capricious habits in regard to geological range in this country, in some localities being a constant

resident, in others appearing and disappearing at intervals" (Newman, 1871); this was confirmed in 1857 and 1858 when a brief revival took place in many other counties but, Kent and Epping Forest apart, the insect was an uncommon one after this time south of a line drawn from the Wash to north Dorset, parts of Lincolnshire, and the whole of Lancashire. Lasting county-wide extinctions (termed as the last record before 1914) came to the Isle of Wight after 1860, to Norfolk after 1861, and the butterfly became very rare in Devon and extinct in Northumberland after 1868, and probably in Leicestershire during the same decade. Nevertheless the most extensive decline commenced after 1871; the last Lancashire record for 30 years was noted during this season and, apart from Clapham, the insect completely disappeared from the London area of the time after the following year. Elsewhere during this decade the species became extinct in Hertfordshire, Buckinghamshire, Suffolk, and Huntingdonshire. A large drop in numbers accompanied the retreat in territory over the 1870's and overall, apart from a few localities in counties such as Yorkshire and in Epping Forest, from 1872 to 1891 inclusive the insect was almost exclusively a rare one north of a line drawn through, and in, the counties of Greater London, Berkshire, Oxfordshire, Warwickshire, Staffordshire, and Cheshire. The species left Essex after 1888, after an increase in numbers in Wales and in its neighbouring counties in 1886 — and a larva was noted in Hampshire during this same season; over the years until the end of that decade the insect was also seen in Kent, Surrey, both east and west Sussex, Wiltshire, Dorset, and fairly commonly in Epping Forest and its homelands. During the 1890's the butterfly was noted four times from the east coast of Kent but it continued to decline elsewhere — as in east Worcestershire after 1892; before recolonisation, it was last recorded in Wiltshire in 1889, Nottinghamshire in 1893, Devon in 1894, and Dorset in 1898. Nevertheless, compared to the previous few decades, there was an increase in frequency in a number of midland counties during the 1890's — including Shropshire, Warwickshire, Staffordshire, and Herefordshire. After the turn of the century the species quickly became extinct, or extremely rare, in Northamptonshire, Lincolnshire, in Lancashire and Berkshire after 1901, in Warwickshire and Yorkshire after 1902, and in Surrey after 1906; it also left diminutive Rutland and Durham during this decade, from Staffordshire after 1908, and from Derbyshire after 1911. The butterfly was at its lowest ebb in this country in the year of 1913 when even in its most favoured haunts it was said to be rare (Frohawk, 1914). In summary, local declines and extinctions were reported throughout the 19th century, although comparatively few final countywide 19th century sightings can be listed until the 1860's. After territorial fluctuations in the north over the third quarter of the century, more than half a dozen counties lost the insect during

the 1870's and more followed during the next decade, but the worst period was from the early 1890's to 1913.

Numbers varied enormously from year to year; for example, in its Herfordshire stronghold the butterfly was abundant in 1875 but very rare both during the previous year and in the following two seasons; it was abundant there again in 1881 and scarce in 1884 and 1885, and abundant again in 1886 and 1887. Even in Durham, prior to 1865 "half a dozen might be swept off the flowers at one stroke of the net" (Barrett, 1893) but then it suddenly became rare, and finally extinct, for more than three-quarters of a century. Covering the period 1850 to 1913, the seasons not already mentioned when the species was recorded as being unusually common in its midland strongholds were 1857, 1858, 1864, 1865, 1866, 1887, 1892, 1893, 1901, and 1910; it was also notably common in north wales in 1882, 1883, and in 1896. Similarly, the insect was unusually rare in its heartlands in 1882, 1894, and 1913. Most of the sudden losses apparently occurred during the period of hibernation as these declines were reported on a yearly basis and not a seasonal one.

Scotland

The Scottish records have been admirably summarised (Thomson, 1980); the Comma was reported from Edinburgh prior to 1811 again at some time before 1846; it was also seen in Berwickshire and as far north as Fife and Alloa before 1835. But the species disappeared from Scotland around the middle of the century, returning in the late 1860's, as it was to be 1868 before it was seen again, in Roxburghshire; this was the same season as its penetration into neighbouring Northumberland and about two years later the insect was noted from three localities within Berwickshire — but these are the last unquestionable Scottish records.

Wales

The butterfly disliked the west facing coast of Wales but it was sometimes common in north Caernarvonshire and at Port Madoc; it was also irregularly frequent in Radnorshire, Flintshire, Montgomeryshire, Merionethshire, and Denbighshire, but rarely numerous in Brecknockshire and Glamorgan. Some important Welsh records were relatively recently brought to wider notice (Dennis, 1971) and, when examined with others, show that the species remained permanently established in the north Wales area (Flintshire, Denbighshire, Merionethshire, and Caernarvonshire), and in the south-east in Glamorgan, whilst records cease from Radnor during the 1870's (although it may well have remained established), and from Montgomeryshire after 1900, probably disappearing from Carmarthenshire at about the same time.

Ireland

There are only two reports of the insect in Ireland, in 1871 at Powerscourt and in about 1895 at Malahide, although doubt was put upon the first mentioned by the leading authority of that country at the time, Kane. Both records were later rejected by Donovan (1936) and ignored by Baynes (1964, 1970) and Nash (1975). However, both localities are about 80 miles north-west of the nearest mainland points on the Welsh coast across the Irish sea and there may well be more to the records than has previously been attributed, especially the first mentioned.

Despite the alarming retreat in range, the records indicate that *c-album* remained permanently established in a larger number of counties than has often been thought. At its nadir in this country the insect was still sometimes locally common in Herefordshire, Gloucestershire, Shropshire, and in the six Welsh counties previously mentioned; it also remained established, but less numerous, in Monmouthshire, north Somerset, west Worcestershire, near Oxford, and less certainly in south-east and north-west Kent, and on the Sussex border.

There has always been speculation over whether or not the butterfly remained established in Kent and Sussex, or that the occasional records that came to notice were due to foreign immigration or national vagrancy. Most leading entomological figures of the time believed that the Comma did not survive in these counties as a permanently established insect — although some notable authorities, such as N. D. Riley, disagreed at the time; my own sympathies lie with Mr. Riley. As has been noted, the butterfly was a common one in these counties over the early years of the 19th century, although this status quickly deteriorated to the point where usually only singletons were observed — but these sightings continued through the period of depression around the turn of the century. It was seen in Kent at least three times over this era (Chalmers-Hunt, 1960), in the far east of Sussex once, and several were reported on these borders in about 1905. At the time the area contained the highest concentration of hop-yards in the southern counties. In addition to the last two counties mentioned, Hampshire also poses a problem in that whilst the insect was at its lowest ebb elsewhere the species continued to be oddly seen but at relatively long intervals. Immediately before the main decline it was said that "it is rarely observed in the Farnham district" (Newman, 1871), in the Hampshire and Surrey hop-fields (although this position may well have been considerably different half a century earlier as the species was common in Sussex and Kent at about that time); at any event, a singleton was reported from the New Forest in 1909, the last previous sighting had come in 1886, and it was to be after the First World War before another record.

However, the possibility of artificial introduction was mentioned at the time and there is evidence to show that the practise did take place. Just as in modern times with other species, secret introductions may have partially clouded the intimate history of the Comma; before 1881 hundreds of larvae and pupae were released "in Surrey and elsewhere, hoping to introduce the species, but without success" (Hutchinson, 1881).

The evidence in favour of immigration from the continent being a factor in the history of this species in this country, within entomological historical times, is very limited — both in the number of reported "migrations", the circumstances surrounding these events, and the number of individuals involved. Modern authorities seem divided over the possibility, although it is positively listed as an immigrant by some (Chalmers-Hunt, 1960; Riley, 1970); it is more likely to be a species which is continually changing its range rather than, vagrants apart, being an immigrant in the accepted sense.

(to be continued)

CELASTRINA ARGIOLUS LINN IN FEBRUARY — In reply to Mr. J. E. Green's request for records of early sightings of blue butterflies (*Ent. Rec.* 98: 39-40) the following may be of note. On 24th February 1985, while successfully surveying the hedgerows for brown hairstreak, a male holly blue was observed for about 20 seconds near a village by the name of Kingsdon, Somerset (ST 530 270). That day was particularly warm and sunny but despite this the only other adult butterflies to be seen were two male brimstones. — N. W. LEAR, 178 St. John's Lane, Bedminster, Bristol BS3 5AR.

SCELIODES LAISALIS (WALKER) (PYRALIDAE) IN LEICESTERSHIRE — On 29 July a specimen of *Sceliodes laisalis* was collected from an m.v. trap operated in my garden at the address below. This appears to be the fourth British record, and the second chronologically. The moth was first reported in Middlesex in 1973, and there are single records for Surrey (1983) and Bedfordshire (1983) (Goater, B. 1986. *British pyralid moths*, Harley Books, Colchester). My specimen remained un-named until 1986 when it was submitted to Mark Sterling who kindly identified it.

Sceliodes laisalis is an African moth, recorded in Europe, and is reported to feed as a larva on tomato. Almost certainly the records thus far are of vagrant immigrants, but the possibility of importation with tomatoes (unlikely from Africa) cannot be ruled out. DENIS F. OWEN, 66 Scraptoft Lane, Leicester LE5 1HU.